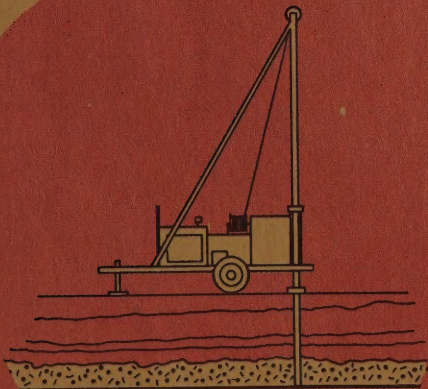
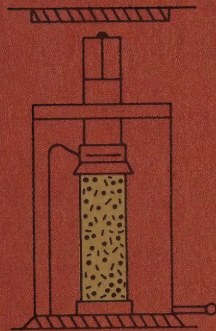


STATE OF NEW YORK  
DEPARTMENT OF TRANSPORTATION



SOIL MECHANICS  
BUREAU



REPORT OF TELEVISION BOREHOLE SURVEY  
OF WELL NUMBER 3  
Iroquois Service Area  
New York State Thruway

By  
Francis R. Irving  
Associate Engineering Geologist







REPORT OF TELEVISION BOREHOLE SURVEY  
OF WELL NUMBER 3

Iroquois Service Area  
New York State Thruway

March 20, 1970

Mr. Belmont M. Williams  
Chief Engineer  
N.Y.S. Thruway Authority  
P.O. Box 189  
Albany, New York 12201

REPORT OF TELEVISION BOREHOLE SURVEY  
WELL NUMBER 3

Iroquois-Indian Castle Service Area

Dear Mr. Williams: New York State Thruway

Project: Well Number 3  
Iroquois-Indian Castle Service Area  
Project No. E101254-071

Subject: Television  
Borehole Survey

In accordance with your request dated January 7, 1970, this Bureau has completed a survey of Well Number 3 with a television borehole camera.

The attached report, prepared by Francis R. Irving, Associate Engineering Geologist, summarizes our findings.

Very truly yours,

Wm. P. Hofmann, Director  
Bureau of Soil Mechanics

by *Richard H. Burns*

Richard H. Burns  
Associate Soils Engineer

RHB/bpa  
Att.

cc: G. W. McAlpin

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March 20, 1970

Mr. Belmont H. Williams  
Chief Engineer  
N.Y.S. Thruway Authority  
P.O. Box 189  
Albany, New York 12201

Dear Mr. Williams:

Project: Well Number 3  
Proposed Indian Castle Service Area  
Project No. EIC0124-071  
Subject: Televised  
Borehole Survey

In accordance with your request dated January 7, 1970, this  
bureau has completed a survey of Well Number 3 with a tele-  
vision borehole camera.

The attached report, prepared by Francis R. Irving, Associate  
Hydrogeologic Geologist, summarizes our findings.

Very truly yours,

Mr. F. Williams, Director  
Bureau of Soil Mechanics

By Richard H. Evans  
Richard H. Evans  
Associate Civil Engineer

RMH/gha

ENC.

cc: G. W. Wright

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**REPORT OF TELEVISION BOREHOLE SURVEY  
OF WELL NUMBER 3**

**Iroquois Service Area  
New York State Thruway**

Part of screen damaged by sand and silt particles entering the well have caused excessive wear to two pumps so far. Pieces of the well screen, including the label, had been recovered during recent bailing operations. The borehole camera was used in an attempt to determine the condition of the well screen at present.

A television inspection of Well Number 3 at the Iroquois-Indian Castle Service Area was conducted on February 17, 1970, by personnel from the Bureau of Soil Mechanics. The inspection was carried out at the request of Mr. Belmont Williams, Chief Engineer of the New York State Thruway Authority.

**REPORT OF TELEVISION BOREHOLE SURVEY**

**OF WELL NUMBER 3**

Well Number 3 is located at station 3333+36, 88' left. The Iroquois-Indian Castle Service Area is lying between elevation 387 and 390 of New York State Thruway.

Sand and silt also particles entering the well have caused excessive wear to two pumps so far. Pieces of the well screen, including the label, had been recovered during recent bailing operations. The borehole camera was used in an attempt to determine the condition of the well screen at present.

The recovered label identified the screen as being a Johnson Everdur 48 "By" screen, ten feet long and eight inch in diameter (7.5 od, 8. Francis R. Irving, Associate Engineering Geologist). A partial view of a partially recovered screen was shown in a photograph recovered by the bailer. The vertical pieces were almost completely covered by a coating of sand grains cemented on by iron oxide. This coating covered the well screen as well as the ends of the vertical pieces showing that they were not broken loose by the recent bailing operations, but must have lain on the bottom of the well for some time.

The damaged top of the screen is shown in Plates II & III. The brass collar and lead seal are both missing. They are probably in the bottom of the well screen, unless they were recovered in some previous bailing operation. Quite a bit of the horizontal "T" section bar was recovered by the bailer, however, there is approximately 16 feet of this "T" section bar to the inch of screen length. The T.V. inspection showed that the damaged area below the missing collar may be only four inches. There is 3.2 feet of screen at present between the damaged top as shown in Plate II and the bottom (lowest point to which the T.V. probe would penetrate). This means that there is probably 4.3±



March 10, 1933

REPORT ON TELEVISION SURVEY  
OF THE  
INDIAN-INDIAN CASTLE SERVICE AREA  
OF THE  
NEW YORK STATE THRUWAY

Submitted by  
Francis R. Irving  
Associate Engineering Geologist

Submitted to  
The New York State Thruway Authority  
Albany, New York

Submitted by  
Francis R. Irving  
Associate Engineering Geologist

Submitted to  
The New York State Thruway Authority  
Albany, New York

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Francis R. Irving  
Associate Engineering Geologist

Submitted to  
The New York State Thruway Authority  
Albany, New York

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1110  
20 West Broadway, Room 34  
Albany, New York 12242



## REPORT OF TELEVISION BOREHOLE SURVEY OF WELL NUMBER 3

Iroquois Service Area  
New York State Thruway

feet of screen composed of sand, rust and pieces of the top of the well screen. The aquifer is only ten feet thick, probably no more than eight feet of the original

A television inspection of Well Number 3 at the Iroquois-Indian Castle Service Area was conducted on February 17, 1970, by personnel from the Bureau of Soil Mechanics. The inspection was carried out at the request of Mr. Belmont Williams, Chief Engineer of the New York State Thruway Authority.

Well Number 3 is located at V.R. Centerline Station 3333.36, 88' left. The aquifer is a ten foot gravel layer lying between elevation 287 and 297.

Sand and silt size particles entering the well have caused excessive wear to two pumps so far. Pieces of the well screen, including the label, had been recovered during recent bailing operations. The borehole camera was used in an attempt to determine the condition of the well screen at present.

The recovered label identified the screen as being a Johnson Everdur 40 slot screen, ten feet long and eight inch in diameter (7.5 od, 6.38 id). Plate I shows an external view of a partially restored section of screen made from pieces recovered by the bailer. The vertical pieces were almost completely covered by a coating of sand grains cemented on by iron oxide. This coating covered the weld areas as well as the ends of the vertical pieces showing that they were not broken loose by the recent bailing operations, but must have lain on the bottom of the well for some time.

The damaged top of the screen is shown in Plates II & III. The brass collar and lead seal are both missing. They are probably in the bottom of the well screen, unless they were recovered in some previous bailing operation. Quite a bit of the horizontal "V" section bar was recovered by the bailer, however, there is approximately 16 feet of this "V" section bar to the inch of screen length. The T.V. inspection showed that the damaged area below the missing collar may be only four inches. There is 3.2 feet of screen at present between the damaged top as shown in Plate II and the bottom (lowest point to which the T.V. probe would penetrate). This means that there is probably 4.3±



REPORT OF INVESTIGATION  
OF WELL NUMBER 3  
Tropics Service Area  
New York State Thruway

A television inspection of Well Number 3 at the Tropics-Indian  
Garage Service Area was conducted on February 17, 1978, by per-  
sonnel from the Bureau of Well Mechanics. The inspection was  
conducted at the request of Mr. Belmont Williams, Chief Engi-  
neer of the New York State Thruway Authority.

Well Number 3 is located at W.D. Continental Station 3331.36, 36'  
left. The aquifer is a fine sand gravel layer lying between ele-  
vation 307 and 307.

Lead and zinc particles entering the well have caused ex-  
cessive wear to two pumps so far. Pieces of the well screen,  
including the label, had been recovered during recent bail-  
ing operations. The borehole camera was used in an attempt to  
determine the condition of the well screen at present.

The recovered label identified the screen as being a Johnson  
Screen 40 inch screen, ten feet long and eight inch in diam-  
eter (7.5 in. x 8.0 in.). Plate I shows an aerial view of a  
partially restored section of screen made from pieces recov-  
ered by the bailer. The vertical pieces were almost completely  
covered by a coating of sand grains cemented on by iron oxide.  
This coating covered the well screen as well as the ends of the  
vertical pieces showing that they were not broken loose by the  
recent bailing operations, but must have lain on the bottom of  
the well for some time.

The damaged top of the screen is shown in Plate II & III. The  
screen collar and lead seal are both missing. They are probably  
in the bottom of the well screen, unless they were removed in  
some previous bailing operation. Quite a bit of the horizontal  
"Y" section bar was recovered by the bailer, however, there is  
approximately 16 feet of this "Y" section bar to the back of  
screen length. The T.V. inspection showed that the damaged  
area below the missing collar may be only four inches. There  
is 1.1 feet of screen at present between the damaged top as  
shown in Plate II and the bottom (lowest point to which the T.V.  
probe would penetrate). This means that there is probably 4.5'



feet of screen completely filled with sediments, rust and pieces of the top of the well screen. Since the aquifer is only ten feet thick, probably no more than eight feet of the original screen was exposed beneath the casing.

Plates IV & V show the material recovered by the bailer separated according to that passing or being retained by the No. 14 sieve. The coarser material consists mainly of rust particles from the casing. There are a few pieces of sandstone and crystalline too coarse to be passed by the well screen. They may have entered the well between the casing and the screen since the seal is no longer present. Figures 1 and 2 show the grain size analysis of the samples taken by the bailer and from the softening wier respectively. Over 90% by weight of the material in both samples could pass a No. 40 well screen. Over 90% of the remaining material is rust particles from inside the casing.

There were also two pieces larger than 1/4", the larger one being 1.5 in. x 2 in. These pieces were reportedly recovered by the bailer in the latest cleaning operation. The T.V. examination did not disclose any openings large enough to permit passage of pieces this large. They may have entered the well accidentally from the top or there may be more extensive damage to the screen below the area that could be examined by the radial view T.V. camera.

The static water level in the well at the time of the survey was 102.5 feet below the top of the casing.

*Francis R. Irving*

Francis R. Irving  
Associate Engineering Geologist

Reconstructed segment of 40 slot  
well screen (exterior view).

These pieces were recovered by the bailer at Well No. 3 at Iroquois Service Area. The encrustations visible at the uncleaned ends of the vertical struts are sand grains cemented on by iron oxide. The fact that they coat the weld areas and ends of the vertical pieces shows that these pieces were not broken loose by the last bailing operation.



feet of screen completely filled with sediments, rust and pieces of the top of the well screen. Since the aquifer is only ten feet thick, probably no more than eight feet of the original screen was exposed beneath the casing.

Placas IV & V show the material recovered by the bailer separated according to that passing or being retained by the No. 10 sieve. The coarsest material consists mainly of rust particles from the casing. There are a few pieces of sandstone and crystalline too coarse to be passed by the well screen. They may have entered the well between the casing and the screen since the seal in no longer present. Figures 1 and 2 show the grain size analysis of the samples taken by the bailer and from the softening wire respectively. Over 90% by weight of the material in both samples could pass a No. 40 well screen. Over 90% of the remaining material is rust particles from inside the casing.

There were also two placas larger than 1/4", the larger one being 1 1/2 in. x 2 in. These placas were reportedly recovered by the bailer in the latest cleaning operation. The T.V. examination did not disclose any openings large enough to permit passage of placas this large. They may have entered the well accidentally from the top or there may be some extensive damage to the screen below the area that could be examined by the radial wire T.V. camera.

The static water level in the well at the time of the survey was 102.5 feet below the top of the casing.

Francis A. Irving

Francis A. Irving  
Associate Engineering Geologist





Plate I Enlargement of reconstructed segment of 40 slot Johnson well screen (exterior view).

These pieces were recovered by the bailer at Well No. 3 at Iroquois Service Area. The encrustations visible at the uncleaned ends of the vertical struts are sand grains cemented on by iron oxide. The fact that they coat the weld areas and ends of the vertical pieces shows that these pieces were not broken loose by the last bailing operation







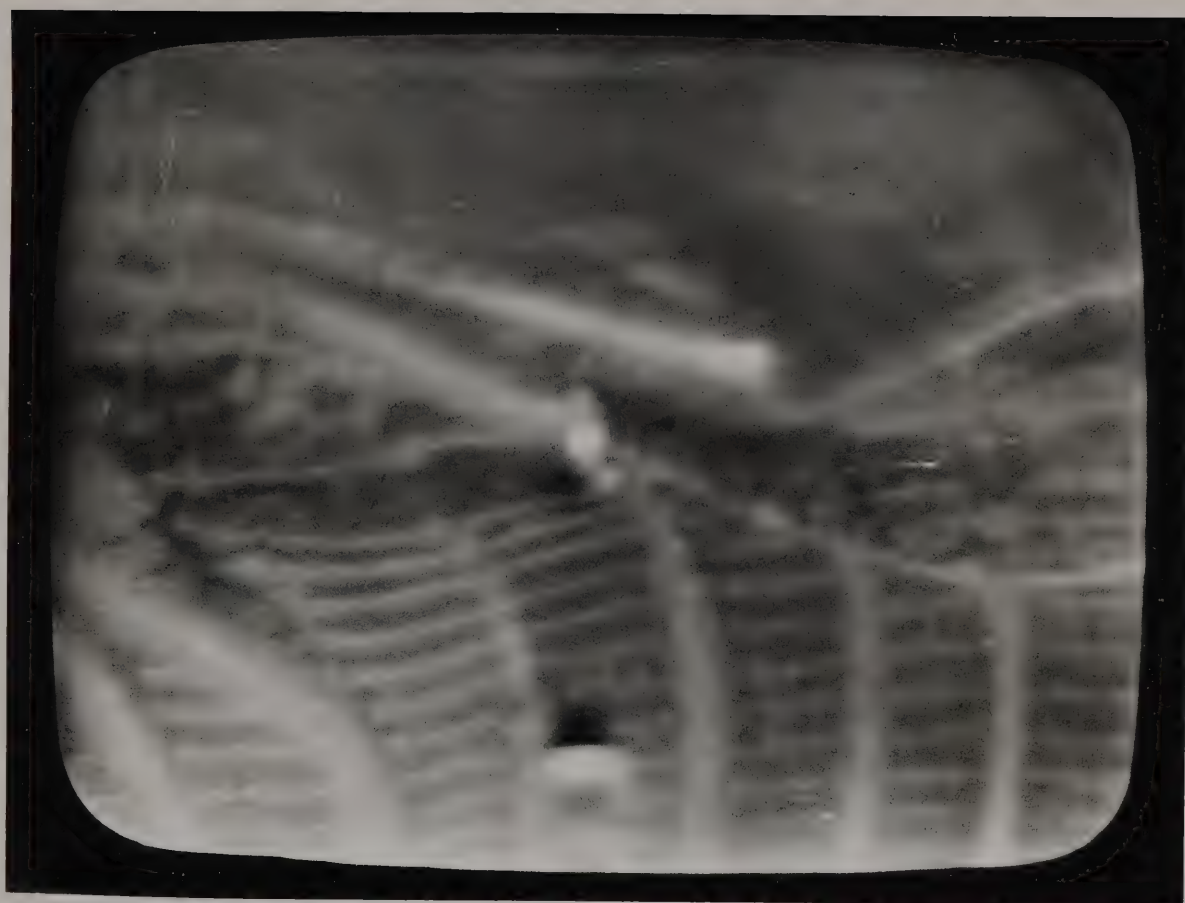


Plate II View showing damage at top of well screen.  
Continuation of Plate IV.

The two pieces in the upper left are vertical members which have been bent over. The wide spots on the horizontal member that winds across the center of the picture are weld marks. The brass collar to which the vertical members were attached and the lead seal are apparently missing.









Plate III View showing well screen at base of damaged area.

The section of the screen that could be examined with the radial view T.V. probe showed no damage below this point.







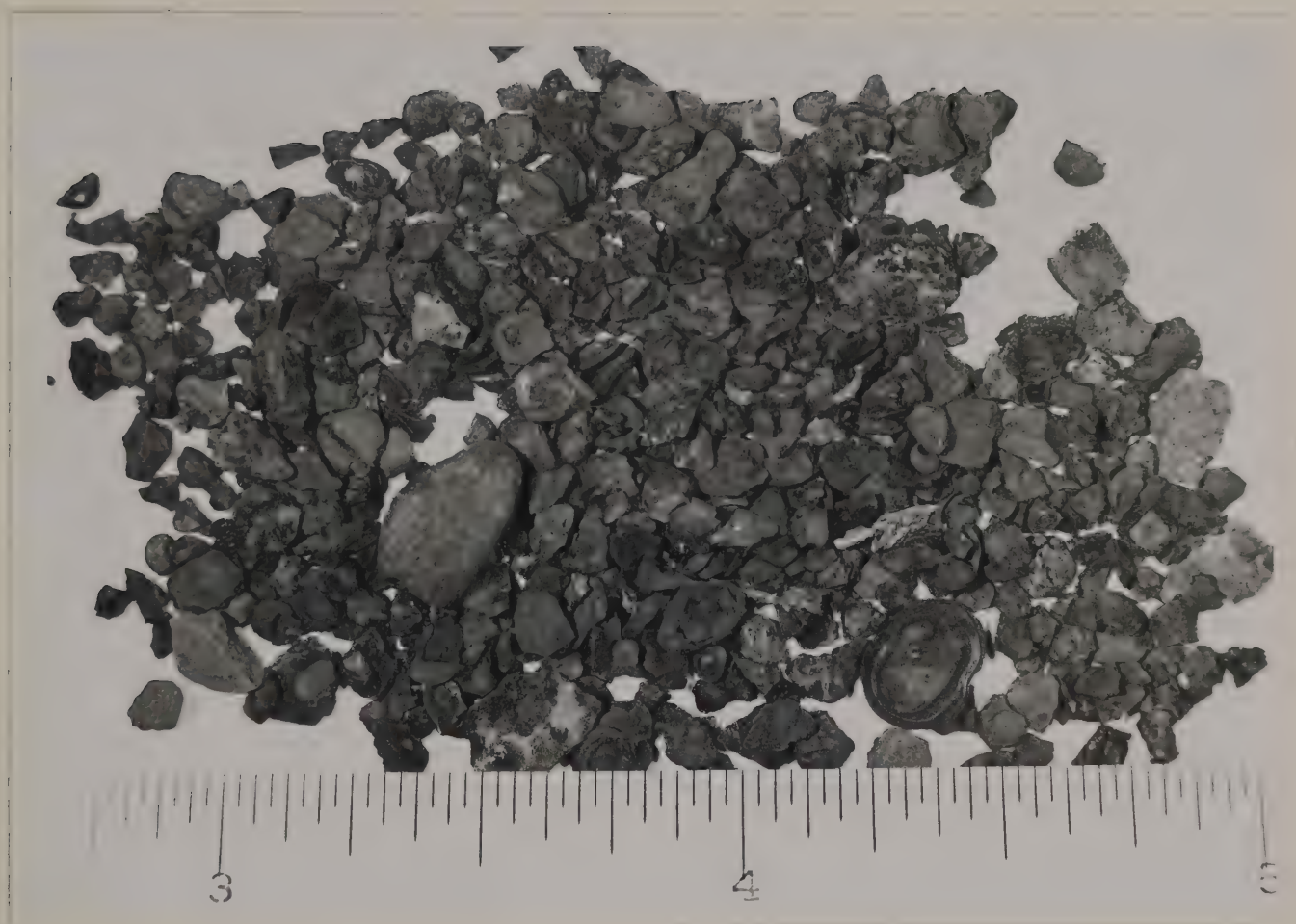


Plate IV Enlarged view of material retained by No. 14 sieve. Sample taken by bailer.

Most of the material shown is iron oxide. The 3/8 in. pebble in the lower left is sandstone.





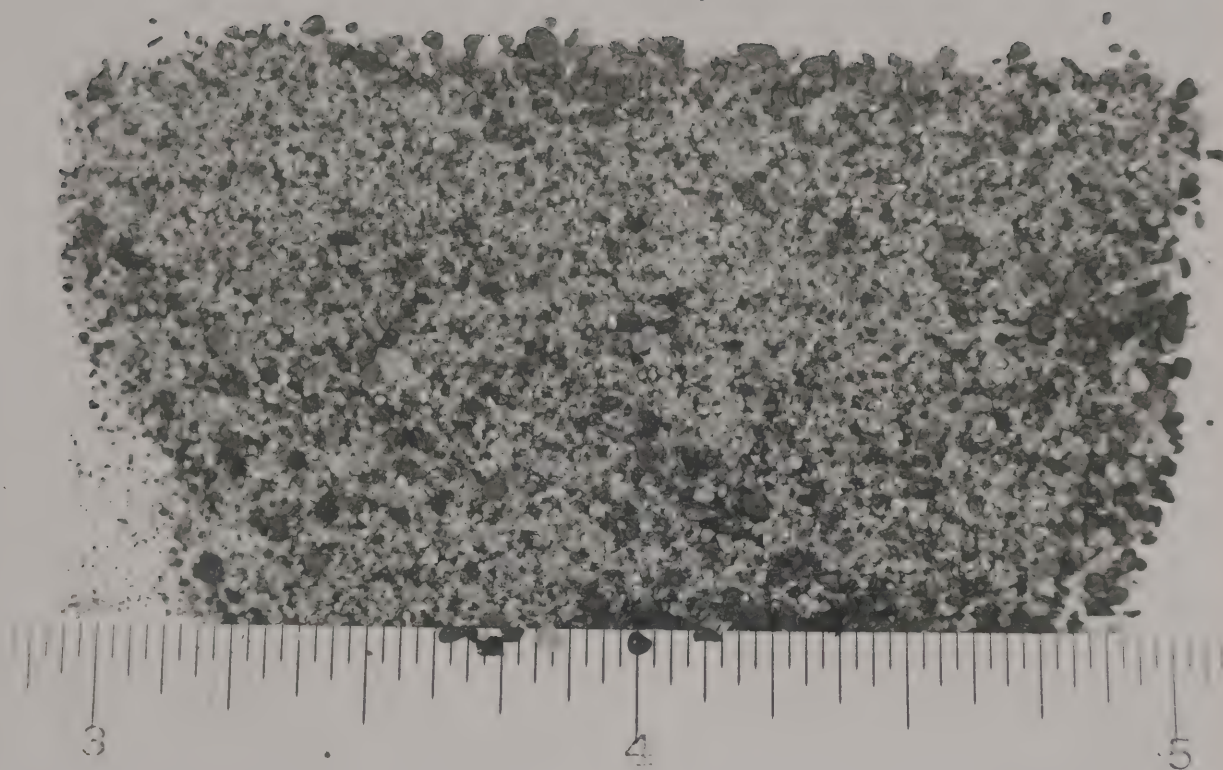


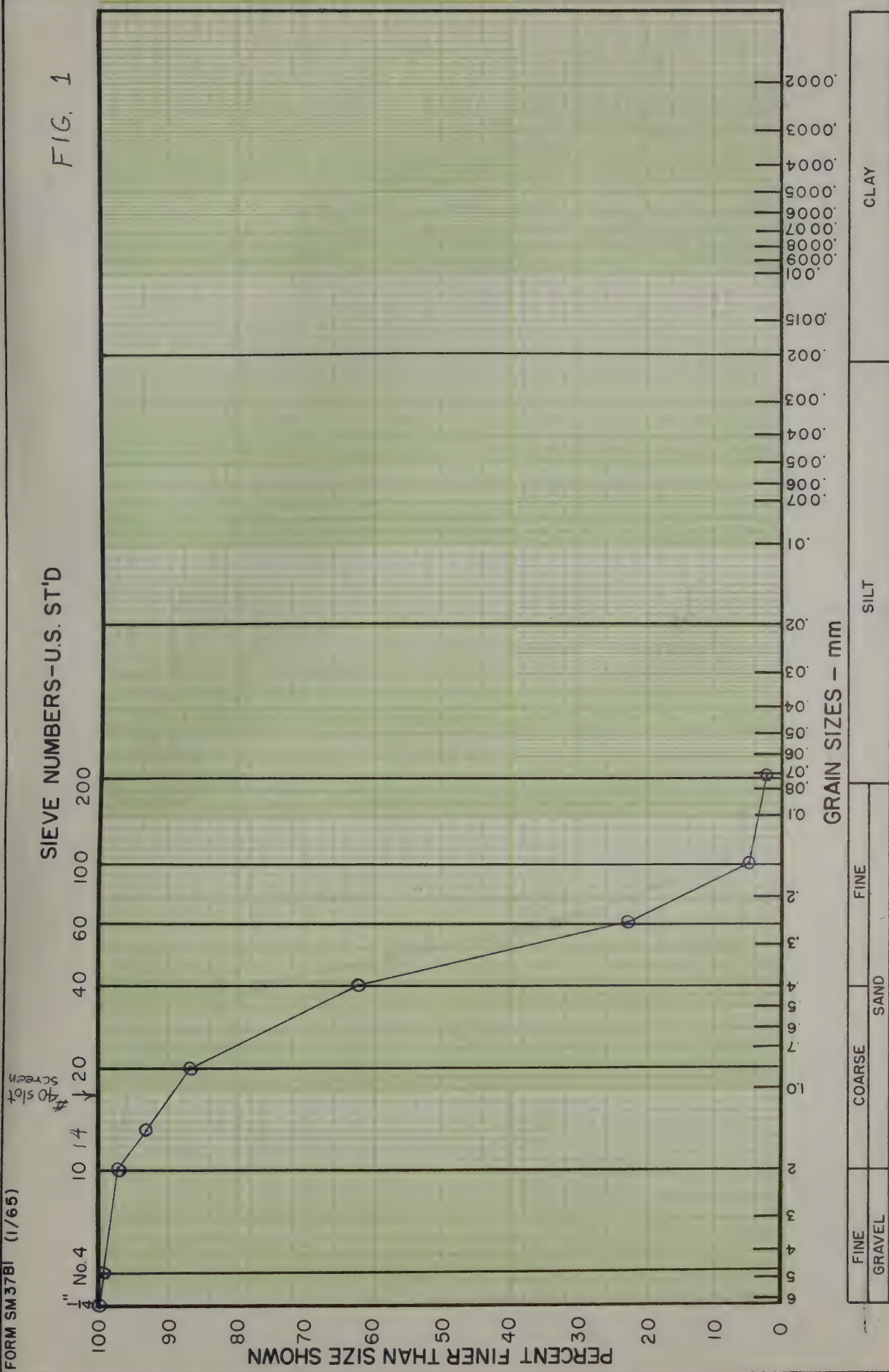
Plate V Enlarged view of material that passes the No. 14 sieve. Sample taken by bailer.





SIEVE NUMBERS—U.S. ST'D

FIG. 1



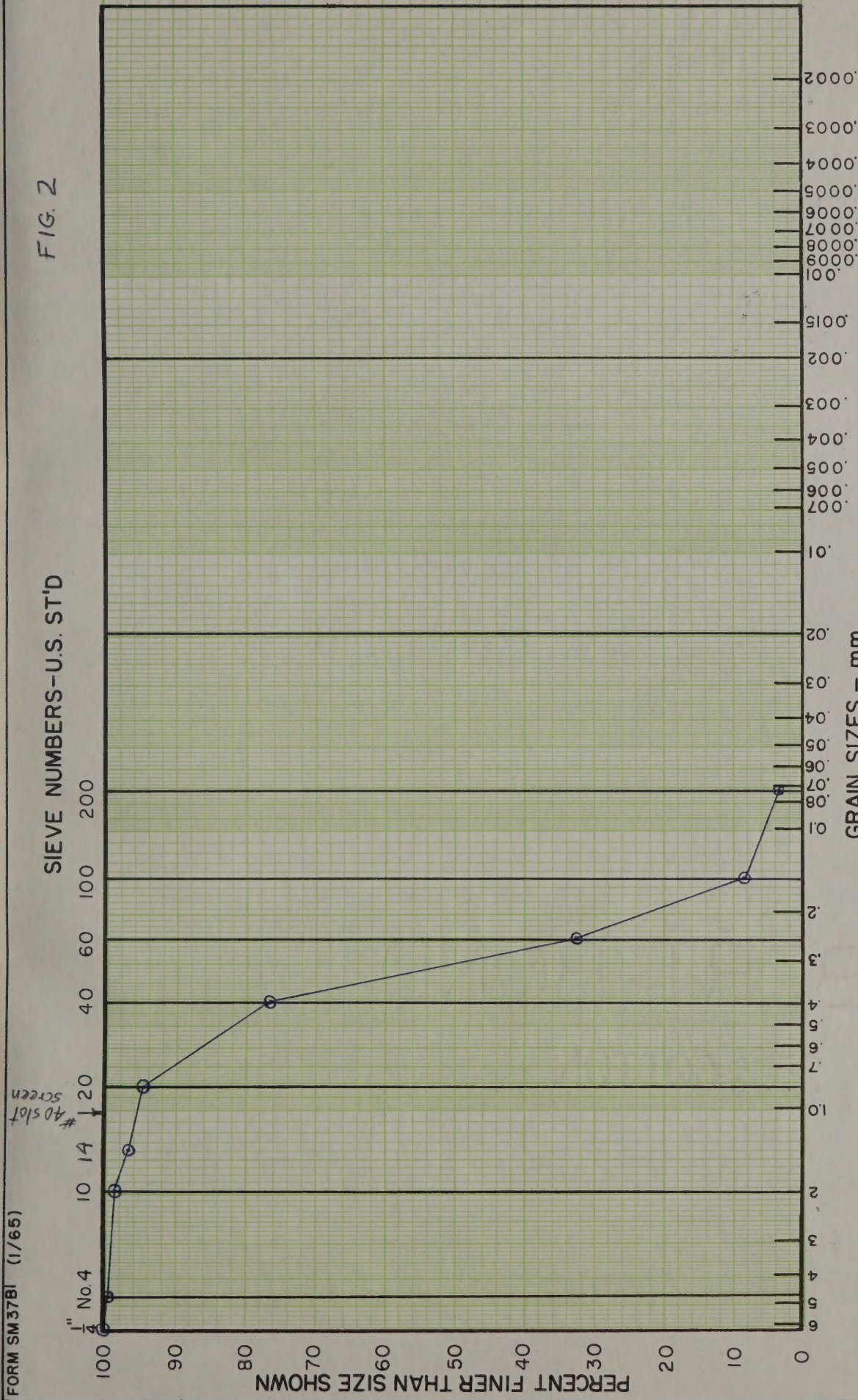
GRAVEL		SAND		FINE		SILT		CLAY	
PROJECT <b>NYSTA Iroquois Service Area Well #3</b>									
SAMPLE NO. <b>Bailer</b>		DISTRICT NO. _____		COUNTY <b>Herkimer</b>					
STATION <b>W.B.C/133333+36</b>		OFFSET <b>88' Lt</b>		DEPTH _____					
DATE <b>2-24-70</b>		DRAWN BY <b>F. Sager</b>							
					STATE OF NEW YORK DEPARTMENT OF PUBLIC WORKS DIVISION OF CONSTRUCTION BUREAU OF SOIL MECHANICS GRAIN SIZE DISTRIBUTION CURVE				





SIEVE NUMBERS—U.S. ST'D

FIG. 2



GRAIN SIZES — mm

FINE GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

PROJECT NYSTA Iroquois Service Area Well #3

SAMPLE NO. Softener DISTRICT NO. Herkiner COUNTY Herkiner

STATION W.B.C/L3333+36 OFFSET 88' Lt DEPTH 88' Lt

DATE 2-24-70 DRAWN BY F. Sager

STATE OF NEW YORK  
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